

## Literature Cited

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**COLPOCEPHALUM (MALLOPHAGA: MENOPONIDAE)  
FROM THE PICIFORMES<sup>1</sup>**

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**Abstract** Descriptions are given for four species, two of which are new: *Colpocephalum harterti* from *Mulleripicus pulverulentus harterti* and *C. pulverulenti* from *M. p. pulverulentus*. *Colpocephalum longicorne* Rudow is synonymized with *C. inaequale* Burmeister.

While accumulating specimens for revisional studies of the genus *Colpocephalum* Nitzsch, 1818, for its various orders of host birds, I have obtained about 100 adult *Colpocephalum* from four genera and six species of woodpeckers (Piciformes). Since neither of the two currently-recognized species of *Colpocephalum* is adequately described and since I have two species new to science, I now present the results of the analysis of these lice.

All material studied consists of specimens mounted on slides. Measurements are given in millimeters. The value in parentheses following a statement of range represents the mean. The nomenclature of the hosts follows that of Peters (1948).

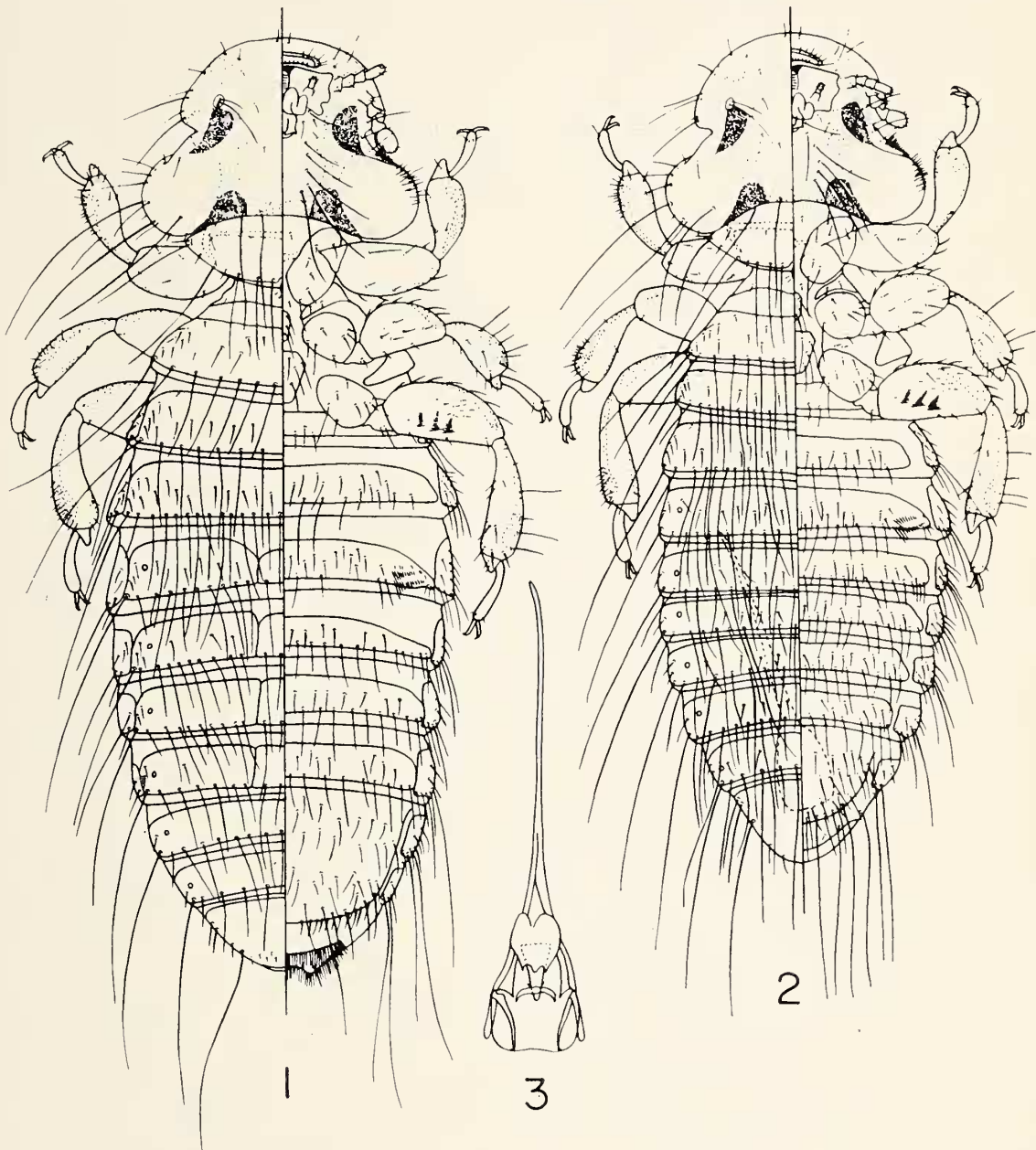
*Colpocephalum inaequale* Burmeister

*Colpocephalum inaequale* Burmeister, 1838, Handb. Ent. **2**: 438. Type host: *Picus martius* = *Dryocopus martius martius* (Linn.).

*Colpocephalum longicorne* Rudow, 1869, Z. ges. NatWiss. **34**: 393. Type host: *Gallus furcatus* = *Gallus varius* (Shaw). Contaminant. New Synonym.

FEMALE As in Fig. 1. Mid-dorsal head setae minute, with inner slightly longer than outer; occipital setae very long. Gular setae typically 5+5 (6 of 67 sides with 4; 3 with 6); at least posterior 2 pairs of setae very long, of about equal length and extending

across coxa I. Preocular and occipital nodi and associated carinae well developed. Margin of pronotum usually with 3 short and 5 long setae on each side; posterior margin of prothorax rather evenly rounded from side to side. Metanotum with 13-16 (14.9) marginal setae; metasternal plate with 7-10 (8.5). Abdominal segments I-III slightly longer than IV-VIII, with sides of abdomen more parallel-sided than evenly oval. Abdominal tergites III-VI or III-VII with paler median area and occasionally weak lines indicating poorly developed tripartite state. Marginal tergal setae from medium to very long: I, 16-19 (17.2); II-IV, 19-27 (22.3); V-VI, 16-21 (18.3); VII, 12-17



Figs. 1-3. *Colpocephalum inaequale* Burm. 1. Female ( $\times 48$ ). 2. Male ( $\times 48$ ). 3. Male genitalia ( $\times 72$ ).

(15.5); VIII, 10-14 (11.8). Postspiracular setae very long on I-VIII, but usually shorter on IV. Medium anterior tergal setae: I-II, 9-17 (12.8); III, 5-11 (7.7); IV, 0-8 (4.5); V-VI, 0-5 (2.3); VII, 0-4 (1.1); VIII, 0-2 (0.4). Tergite of last segment as illustrated, with 4-8 (5.7) fine very short inner posterior setae on each side, most not extending beyond margin of tergite. Abdominal sternal setae: I, 4-6 (5.0); II, 32-42 (38.2); III, 20-30 (26.0); IV-VI, 29-40 (35.3); sternites VII-IX fused, with VII

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having 26–36 (31.6) setae and VIII–IX, 25–33 (29.7) anterior setae and marginally (vulva) 16–23 (20.9) setae with 3–5 (4.2) stouter longer setae laterally adjacent to marginal row. Sternite III marginally with 3–4 median setae separated by gap from 2–4 setae adjacent to comb rows. Anus “W”-shaped dorsally, with one longer stouter inner seta on each side; anal fringe ventrally of 35–49 (44.0) setae, dorsally, 43–57 (50.9). Dimensions: preocular width, 0.40–0.42; temple width, 0.54–0.57; head length, 0.35–0.37; prothorax width, 0.36–0.38; metathorax width, 0.50–0.54; total length, 1.82–2.03.

MALE As in Fig. 2. Head and thorax as for female, except for only 6–9 (7.1) setae on metasternal plate. Abdominal tergites undivided. Marginal tergal setae long among very long: I, 15–17 (16.0); II, 19–23 (21.3); III–V, 20–25 (22.5); VI, 18–24 (20.2); VII, 15–20 (17.9); VIII, 12–14 (13.2). Postspiracular setae very long on I–VIII. More anterior tergal setae than female: I, 8–16 (12.1); II, 13–22 (16.9); III–V, 6–26 (17.1); VI, 4–20 (14.4); VII, 3–18 (11.9); VIII, 0–12 (6.9). Setal numbers on sternites I–VII essentially as for female; sternite VIII with 23–32 (28.9) and genital plate with 22–27 (23.7) setae. Last segment distinctively shaped, with tergal plate elongated (0.15–0.17 long at mid-line), somewhat tapered and passing to ventroposterior side, thereby giving sharply-defined margin and a short wide terminal ventral sclerite; genital plate unusually far removed from caudal margin of segment (0.06–0.08), almost twice as far from margin at mid-line than lateral portion. Genitalia as in Fig. 3; genital sclerite with pointed lateroposterior projections and blunt median process of varying length; penis long, slender, barbed well up from tip. Dimensions: Same as for female, except for temple width, 0.52–0.55; metathorax width, 0.45–0.49; total length, 1.66–1.90; genitalia length, 0.60–0.71.

Although *C. longicorne* was described from *Gallus varius* (Galliformes), Clay and Hopkins (1955), after a study of the type male of this species, decided that it was probably a straggler from the Falconiformes. They indicated that it would be of great difficulty to identify it and that, since the name had been treated as a *nomen dubium* for 85 years, it should not be revived. They suggested application to the International Commission to have the name placed on the Official Index. I recently borrowed the type male from Dr. H. Weidner of Hamburg and found that it is not similar to any known to occur on the Falconiformes. Instead, it agrees with the male of *C. inaequale* in size, setal number and lengths, structure of segment IX and male genitalia, as well as numerous other features. Therefore, it will be unnecessary to consider application to the International Commission to dispose of the name *C. longicorne* as it now falls into synonymy with *C. inaequale*.

MATERIAL EXAMINED 34 ♀♀, 38 ♂♂ from *Dryocopus m. martius* from Estonia and Poland; 1 ♂ cotype of *C. longicorne* from *Gallus furcatus*.

*Colpocephalum harterti* new species

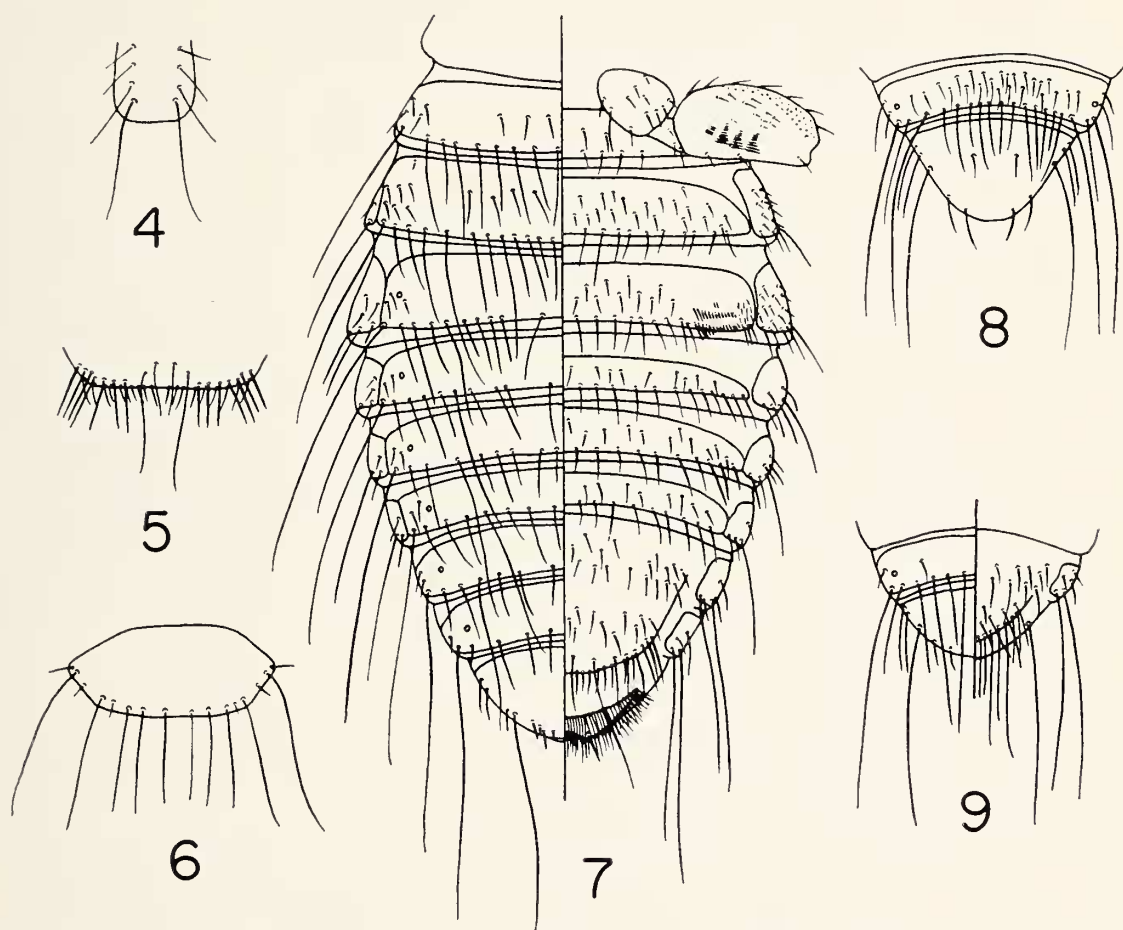
TYPE HOST *Mulleripicus pulverulentus harterti* Hesse.

Resembles *C. inaequale*, except as cited below. Gular setae in 8 specimens examined 4 + 4, of shorter lengths (Fig. 4). Lateroposterior margin of prothorax angulate (Fig. 6).

FEMALE Margin of metanotum with 13–14 (13.8) setae; metasternal plate with 10–12

(11.0) setae. Fewer anterior tergal setae on II, 8-10 (8.8); III, 2-6 (3.3); IV, 0-1 (0.3); V-VIII, 0. Only 4-5 (4.5) inner posterior setae on each side of tergite IX, but of same length as *C. inaequale*. More sternal setae: I, 6-9 (8.3); II, 44-51 (48.0); III, 29-36 (32.5); IV, 40-47 (44.3); V, 38-42 (40.3); VI, 36-39 (36.8); VII, 33-36 (34.8). Vulval margin with 6-8 (6.9) stouter longer setae laterally adjacent to marginal row (Fig. 5). Anal fringe ventrally of 46-49 (47.3) setae, dorsally of 48-59 (52.3). Dimensions consistently smaller: preocular width, 0.36-0.38; temple width, 0.49-0.50; head length, 0.33-0.34; prothorax width, 0.33; metathorax width, 0.49-0.52; total length, 1.77-1.84.

MALE Margin of metanotum with 12-13 (12.5) setae; metasternal plate with 9-11 (10.3) setae. Smaller number of anterior tergal setae: III, 13-15 (14.3); IV, 7-15 (12.0); V, 10-13 (10.8); VI-VII, 7-9 (8.0); VIII, 3-5 (4.0). Tendency for more sternal setae:



Figs. 4-9. *Colpocephalum harterti* n. sp. 4. Gula ( $\times 72$ ). 5. Vulval margin ( $\times 60$ ). 6. pronotum ( $\times 60$ ); *C. pulverulenti* n. sp. 7. Abdomen, female ( $\times 58$ ). 8. Dorsal terminal segments, male ( $\times 58$ ); *C. tirkhan* (Ansari). Terminal segments, male ( $\times 58$ ).

I, 5-7 (6.3); II, 48-52 (49.5); III, 34-44 (39.3); IV, 49-53 (51.0); V, 40-44 (41.5); VI, 38-39 (38.8). Genital plate with 27-31 (29.0) setae. Smaller in certain dimensions: preocular width, 0.36-0.38; temple width, 0.48-0.51; head length, 0.33-0.34; prothorax width, 0.32-0.34.

MATERIAL EXAMINED 4 ♀♀, 4 ♂♂ from *Mulleripicus pulverulentus harterti*, Thailand, Ubon, Det Udom, Kaeng, 4 Nov. 1953, B. Lekagul, Sc96, RT-B22755. Holotype ♀, allotype ♂ in the United States National Museum;

2 ♀, 2 ♂ paratypes in the collection of Dr. K. C. Emerson; 1 ♀, 1 ♂ paratypes at the University of Minnesota.

*Colpocephalum pulverulenti* new species

TYPE HOST *Mulleripicus pulverulentus pulverulentus* (Temminck).

Head and thorax similar to *C. harterti*, but with 14–16 (15.0) marginal metanotal setae and only 7–10 (9.0) setae on metasternal plate. Differs from both *C. inaequale* and *C. harterti* as follows.

FEMALE Abdomen (Fig. 7) with more oval outline. With fewest anterior setae on abdominal tergites; only 0–1 (0.5) on III and none on IV–VIII. Tergite IX on each side with 3–5 (3.9) inner posterior setae, stouter, longer, with majority extending well beyond posterior margin of last tergite. Several sternites with more setae: II, 59–62 (60.5); III, 39–44 (40.5); IV–VII within ranges of *C. harterti*. Sternite III with marginal setae evenly spaced across it. Chaetotaxy of vulval margin like *C. inaequale*. Anus in shape and basic chaetotaxy similar to preceding species, but with considerably more setae in ventral fringe, 58–65 (61.3), and a few more dorsally, 59–63 (61.3). Preocular width, head length, metathorax width, and total length as for *C. harterti*; temple width, 0.52, and prothorax width, 0.34–0.35, intermediate between the preceding two species.

MALE Most striking difference from *C. inaequale* and *C. harterti* consists of the larger number of marginal abdominal tergal setae on VII, 21–24 (22.5) and VIII, 15–19 (17.0), and the very large number of anterior setae in highly irregular single to double row on tergites I–VIII: I, 18; II, 27–29 (28.0); III, 32–33 (32.3); IV, 32–36 (33.7); V, 29–35 (32.3); VI, 29–31 (29.8); VII, 22–30 (27.3); VIII, 22–24 (23.0). Morphology of last segment (Fig. 8) like other species, but with 2 specimens each having 2 median anterior tergal setae and other specimens each with 1 lateroanterior seta. All abdominal sternites also with more setae than either of the other species: I, 7–10 (8.8); II, 57–70 (63.0); III, 45–54 (49.0); IV, 60–67 (64.3); V, 55–62 (58.3); VI, 46–58 (53.0); VII, 48–50 (49.0); VIII, 36–39 (37.5). Genital plate with fewer setae, 20–24 (21.0). All dimensions similar to *C. harterti*, except larger temple width, 0.51–0.52.

In addition to the series described above from the type host, a very short series from *Dryocopus* is also considered to represent this same species. The single female apparently diverges only by having 48 ventral and 51 dorsal anal setae, but a distortion of the specimen and possible missing setae do not permit accurate observation. The two males also agree with the males of *C. pulverulenti*, except for having slightly fewer anterior abdominal tergal setae on VI, 25–26; VII, 20–22; and VIII, 13–17. Further collections may enable reliable separation, but for now it seems best to treat all of these tentatively as the same species.

MATERIAL EXAMINED 4 ♀♀, 2 ♂♂ from *Mulleripicus pulverulentus*, Balabac Is., Philippines, April 29, 1962, Max Thompson, colr., BBM-PI 2831; 2 ♂♂ with same data but collected on April 30, 1962, BBM-PI 2887. Holotype ♂, allotype ♀ in the United States National Museum; 2 ♀, 2 ♂ paratypes in the collection of Dr. K. C. Emerson; 1 ♀, 1 ♂ paratypes at the University of Minnesota. Additionally, 1 ♀, 2 ♂♂ from *Dryocopus javensis multilunatus* (McGregor) from Philippine Islands.

*Colpocephalum tirkhan* (Ansari)

*Cuculiphilus* (*Picusphilus*) *tirkhan* Ansari, 1951, Proc. Nat. Inst. Sci. India 17: 164.

Type host: *Picus squamatus squamatus* Vigors.

**FEMALE** Head and thorax similar to *C. inaequale* (Fig. 1), but with weakly developed head carinae, 19 marginal metanotal setae, 13 setae on metasternal plate, and one specimen with only 4+4 long gular setae. Abdominal tergites I–VIII, respectively, with 21–22, 22–27, 22–25, 25–28, 22–23, 20–21, 19, and 10–12 marginal setae; a number of these setae quite long, extending across 2 following tergites. Anterior tergal setae in number much as for *C. inaequale*, but those on I–II considerably longer, all reaching well beyond bases of tergoventral setae of each respective segment. Tergite IX with 6–12 inner posterior setae of varying sizes. More abdominal sternal setae on I, 10; II, 49–52; III, 31–33; IV, 43; but otherwise as for *C. inaequale*, except for evenly distributed marginal setae on sternite III and for slightly longer marginal vulval setae (0.050 against 0.038). Dimensions as for *C. harterti*.

**MALE** Chaetotaxy very similar to *C. inaequale* (Fig. 2), except for (1) long gular setae 4+4, (2) shorter postspiracular seta on IV, not extending beyond following 2 segments, and (3) tendency for fewer anterior tergal setae on certain abdominal segments: III, 9–15; IV, 10–13; V, 7–12; VI, 4–11; VII, 4–7; VIII, 2. Shape of last segment (Fig. 9) different from all other known species from this host group; segment shorter, more rounded, length of tergal plate less (0.11–0.12) and distance between genital plate and end of segment at mid-line (0.02–0.04) approximately same as at lateral portion. Genitalia as in Fig. 3. Smallest of the known species from Piciformes: preocular width, 0.35–0.36; temple width, 0.45–0.46; head length, 0.32; prothorax width, 0.32–0.33; metathorax width, 0.40–0.41; total length, 1.59–1.66; genitalia length, 0.58.

The series from *P. canus* and *Dendrocopos* are quite close to *C. tirkhan*, showing only very minor quantitative differences from this species. The *P. canus* series differs from *C. tirkhan* in being slightly smaller in head and prothorax width and in males having a few more anterior tergal setae on abdominal segments IV–VIII. However, the series from *Dendrocopos* is intermediate between these two and lends support to the inseparability of these series with material now available. Because of the short series and absence of reliable characters for separation, I am considering these to be conspecific with *C. tirkhan*.

**MATERIAL EXAMINED** 2 ♀, 1 ♂ paratypes and 1 other ♂ from *Picus s. squamatus* from Panjab and Simla; 1 ♀, 4 ♂♂ from *P. canus* Gmelin from Thailand; 2 ♀♀, 3 ♂♂ from *Dendrocopos leucotos sinicus* (Buturlin) from Korea.

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